

19. A PRELIMINARY REPORT ON INSECT-ASSOCIATED MITES OF SOUTH BENGAL, INDIA

NIRMAL DEBNATH^{1,2}, ANANYA DAS^{1,3} AND SALIL K. GUPTA^{1,4}¹P.G. Dept. of Zoology, Vidyasagar College, CL Block, Salt Lake City, Kolkata 700 091, West Bengal, India.²Email: nirmaldebnath2012@gmail.com³Email: dasananya86@gmail.com⁴Email: salil_zsidumdum@yahoo.com**Introduction**

Members of various orders of insects are often found infested by mites of different groups and the association between them may be of temporary nature for passive transport or may be commensalistic, parasitic, or predatory (Hunter and Rossario 1988). The parasitic/predatory behaviour of mites may be exploited in biological control of insect pests, and hence, insect-associated mites have received importance and studies have been initiated to explore their association with insects, especially those of agricultural importance. Most of the published works available from India are from southern India. In this paper, we discuss the insect associated mites of West Bengal, based on a preliminary study carried out by us from South 24 Parganas district from February to August 2011.

Material and Methods

Insects were collected from different agricultural and horticultural fields of South 24 Parganas district of West Bengal with the help of a collecting net and light trap. The insect collected were thoroughly examined under a stereo-

binocular microscope to record the mites associated with them. The insect groups collected and examined for mites were members of the orders Lepidoptera, Hemiptera, Diptera, Coleoptera, Hymenoptera, and Odonata. Different body parts of the insect, such as the underside of proboscis and elytra, wing base, legs, area between head and thorax, and antennae were examined for collection of mites. The specimens were temporarily mounted in lactic acid for microscopic observation. Permanent slides were prepared in Hoyer's medium. The slide mounted specimens were examined and identified under a microscope, following appropriate identification keys and literature. The identification of host insects was made mostly by experts of the Zoological Survey of India, Kolkata.

Results and Discussion

Ten species of mites under 10 genera, 9 families and 3 orders were recorded from the six orders of insects examined (Table 1). The mesostigmatid mites collected were *Alliphis* sp., *Amblyseius largoensis* (Muma), *Hemipteroseius indicus* Krantz and Khot, *Macrocheles muscaedomesticae* (Scopoli),

Table 1: Details of species collected from insects of South Bengal

S. No.	Order / Family	Species	Host	Location	Date of Collection	Body parts of insect where recorded
1	Order Mesostigmata Family Eviphidae	<i>Alliphis</i> sp.	Lepidoptera (<i>Junonia</i> sp.)	Baruipur	27.ii.2011	All under proboscis, below wing base, leg
		<i>Alliphis</i> sp.	Lepidoptera (<i>Papilio demoleus</i> Linn.)	Narendrapur		
		<i>Alliphis</i> sp.	Lepidoptera (<i>Agrotis</i> sp.)	Science City Area	15.v.2011 18.v.2011	
2	Family Phytoseiidae	<i>Amblyseius largoensis</i> (Muma)	Hemiptera <i>Leptocoris acuta</i> (Thunb.)	Chinsura	12.ii.2011	Between head and thorax, below elytra
3	Family Otopheidomenidae	<i>Hemipteroseius indicus</i> (Krantz & Khot)	Hemiptera <i>Dysdercus koenigi</i> Fabr.	Narendrapur Kalikapur	26.iii.2011 04.vi.2011	Ventrally, on thorax

Table 1: Details of species collected from insects of South Bengal (contd.)

S. No.	Order / Family	Species	Host	Location	Date of Collection	Body parts of insect where recorded
4	Family Macrochelidae	<i>Macrocheles muscaedomesticae</i> (Scopoli)	Diptera <i>Musca domestica</i> Linn.	Baruipur Baruipur	24.iv.2011 12.vi.2011	Below antennae, wing base
5	Family Ascidae	<i>Blattisocius keegani</i> (Fox)	Lepidoptera (<i>Danalis</i> sp.)	Kalikapur	04.viii.2011	Under proboscis, below wing base, leg
6	Family Eviphidae	<i>Eviphis</i> sp.	Coleoptera (<i>Henosepilachna vigintioctopunctata</i>) Fabr.	Science City area	04.viii.2011	Below elytra
7	Order Astigmata Family Acaridae	<i>Rhizoglyphus echinopus</i> (F and R)	Coleoptera (<i>Aspidomorpha</i> sp.)	Baruipur Narendrapur	20.ii.2011 12.vi.2011	On ventral surface, area between head and thorax
8	Family Anoetidae	<i>Sennertia</i> sp.	Hymenoptera <i>Xylocopa</i> sp.	Narendrapur Baruipur	13.iii.2011 18.iii.2011	On ventral surface
9	Family Acaridae <i>berlesii</i> (Michael)	<i>Caloglyphus</i>	Coleoptera <i>Coccinella</i> sp.	Narendrapur	10.iv.2011	On ventral surface, area between head and thorax
10	Order Prostigmata Family Arrenuridae	<i>Arrenurus</i> sp.	Odonata	Science City area	04.viii.2011	Below antennae, area between head and thorax

Blattisocius keegani Fox and *Eviphis* sp. Of these, *Alliphis* sp. and *Blattisocius keegani* collected from Lepidoptera, *Hemipteroseius indicus* from red cotton bug, and *Macrocheles muscaedomesticae* from the housefly, were the most common species. Similar findings were reported by Ramaraju (2009) from Tamil Nadu. However, the *Alliphis* sp. collected during this study appears to be different from *Alliphis trichiensis* Ramaraju and Mohanasundaram, and also from all the other known species. This clearly indicates that the present species of *Alliphis* may probably represent a new taxon. The record of *A. largoensis* in our study appears to be a case of accidental occurrence, as it is a leaf inhabiting predatory mite. The association of other mesostigmatid mites was phoretic.

The present report includes three species of astigmatid mites of which *Sennertia* sp. appears to be a new species. The other two species of this order are truly phoretic Ramaraju and Mohanasundaram (1998, 1999) reported 7 species of this

order from Tamil Nadu, associated with insects.

Ramaraju (2009) reported 17 species under 17 genera; this study reports 6 species from 10 genera. Only one species of Prostigmata, i.e. *Arrenurus* sp., was collected in this study, while Ramaraju (2009) reported 9 species of Prostigmata under 9 genera.

ACKNOWLEDGEMENTS

The authors are thankful to the University Grants Commission, Eastern Regional Office, Kolkata, for funding the project and to Dr. G.C. Sadhukhan, P.G. Dept. of Zoology, Vidyasagar College, Kolkata, for providing infrastructure facilities. Sincere thanks are also due to the Secretary, Ramakrishna Mission Ashrama, Narendrapur, for permitting the authors to conduct this study (collection of insects, etc.) in the campus of the Ashrama.

REFERENCES

- HUNTER, P.E. & R.M.T. ROSSARIO (1998): Associations of Mesostigmata with other arthropods. *Ann. Rev. Ent.* 33: 319.
- RAMARAJU, K. (2009): Biodiversity of mites associated with insects in Western Ghats. Gol-MoEF Project. Annual progress report 2008–2009. Department of Agricultural Entomology, Center for Plant Protection Studies Tamil Nadu Agricultural University, Coimbatore 641 003. 53 pp.
- RAMARAJU, K. & M. MOHANASUNDARAM (1998): New phoretic mites (Acari: Chaetodactylidae) on carpenter bees from Tamil Nadu, India. *Internat. J. Acarol.* 27(2): 107–112.
- RAMARAJU, K. & M. MOHANASUNDARAM (1999): A new hypopus of *Calvolia longireticulata* sp. nov. (Acari: Winterschmidtidae) from Tamil Nadu, India. *J. Ent. Res.* 23(1): 47–49.

20. *BEGONIA HIRTELLA* LINK – AN ADDITION TO THE FLORA OF KERALA, INDIAMAKARAND M. AITAWADE^{1,2}, A.R. KULAVMODE^{1,3} AND S.R. YADAV^{1,4}¹Department of Botany, Shivaji University, Kolhapur 416 004, Maharashtra, India.²Email: meetmh@rediffmail.com³Email: akulavmode@gmail.com⁴Email: sryadavdu@rediffmail.com

Introduction

During our visit to the Tropical Botanical Garden and Research Institute (TBGRI), Phalode, Kerala, a species of *Begonia* was seen growing on the compound wall of a house, which was later identified as *Begonia hirtella* Link, native to Tropical America and commonly known as Fringed Begonia. The species had been reported as a new record for Indian flora by Bachulkar and Yadav (2000) from Belgaum district, Karnataka.

The identity of the specimens, which were deposited in Shivaji University (MMA-4) was confirmed by comparing with images of a colour plate (Edwards's Botanical Register, t. 1252), images of Type in Botanic Garden and Botanical Museum Berlin-Dahlem (B 10 0243031, B 10 0243032), and the specimen deposited by Bachulkar (MPB-4722).

Begonia hirtella Link, Enum. (Fig. 1) Pl. Hort. Berol. 2: 396. 1822; Jayasuriya in Dassanayake & Fosberg Rev. Handb. Fl. Ceylon 4: 144. 1983; Bachulkar and S.R. Yadav. J. Econ. Tax. Bot. 24 (2): 293–294. 2000. *Begonia ciliata* HBK. Nov. Gen. & Sp. 7: 178. 1825. *Begonia villosa* Lindl. Bot. Reg. 15: t. 1252. 1829. *Begonia hirtella* var. *nana* A. DC. in Mart. Fl. Bras. 4 (1): 345. t. 8. 1861.

Herb. Stem erect, branched, densely villous, succulent. Leaves simple, asymmetrical, ovate, villous above and at margin, nearly glabrous below, stipule whitish-green, glabrous, lacerate or ciliate at margin; persistent. Flowers small, white, bracteate; bract ovate, lacinate, ciliate at margin. Male flowers: Tepals 4, petaloid, outer 2 tepals larger than inner 2, glabrous, Stamens 7–10. Female flower: Tepals 5, outer two larger than inner, styles 3, bifid, stigmas linear coiled, ovary winged. Fruit: capsule, wings 3; one of them larger than other two, glabrous to glandular-punctate with persistent bract, bracteole, and style; seeds numerous, elliptic ovate, brown with alveolate surface.



Fig. 1: *Begonia hirtella* Link: (A) Flowering and fruiting twig, (B) Stipule, (C) Male flower, (D) Bract of male flower, (E) Single stamen, (F) Female flower, (G) Bract of female flower, (H) Capsule with persistent bracteole, (I) Seed

Fl. and Fr.: August to January.

Specimens observed: MPB-4722 and MMA-4 (SUK).

Distribution: Native of Tropical America and has spread to Sri Lanka, Brazil, and India.

Notes: It grows in humid shady places. This species can